Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of generating a cell composition containing cells of cardiomyocyte lineage from human embryonic stem (hES) cells, comprising:

a) initiating differentiation of the hES cells in suspension culture by forming embryoid bodies in a media comprising serum;

b) culturing the initiated cells so that they differentiate into cells that undergo spontaneous contraction;

c) harvesting differentiated cells that demonstrate spontaneous contraction;

d) separating the harvested cells into fractions based on density wherein the cells are present in a ~~the~~ fraction having a density of about 1.05 g/ml, a fraction having a density of about 1.075 g/ml, a fraction including an upper interface of a gradient comprising a fraction having a density of about 1.05 g/ml, and a fraction having a density of about 1.075 g/ml, and a fraction including a lower interface of a gradient comprising a fraction having a density of about 1.05 g/ml, and a fraction having a density of about 1.075 g/ml; and

e) ~~collecting~~ isolating the cell fractions containing cells that express cardiac troponin I (cTnI), cardiac troponin T (cTnT), or atrial natriuretic factor (ANF) from an endogenous gene;

thereby generating a cell composition comprising cardiomyocyte lineage cells.

2. (Previously presented) The method of claim 1, wherein the embryoid bodies are plated onto a surface coated with gelatin or extracellular matrix.
3. (Previously presented) The method of claim 1, wherein the cells are differentiated in the presence of a nucleotide analog that affects DNA methylation.
4. (Previously presented) The method of claim 1, wherein the cells are differentiated in a growth environment comprising activin, an insulin-like growth factor and a member of the TGFβ family.
5. (Canceled).
6. (Previously presented) The method of claim 1, wherein the cells are differentiated in a growth environment containing 20% serum or serum substitute.
7. (Original) The method of claim 1, wherein the harvested cells are separated by density centrifugation.
8. (Canceled)
9. (Previously presented) The method of claim 1, further comprising culturing the collected cells for at least 1 week in a medium containing a compound capable of forming a high energy phosphate bond, an acyl group carrier molecule, and a cardiomyocyte calcium channel modulator.
10. (Previously presented) The method of claim 9, further comprising culturing the collected cells for at least 1 week in a medium containing creatine, carnitine, or taurine.

11-16. (Canceled)